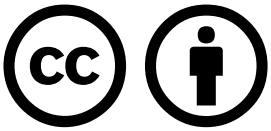
THINK SOUTH

REIMAGINING THE INTERNET

EDIGS: EMERGING DIGITAL ISSUES FROM THE GLOBAL SOUTH.



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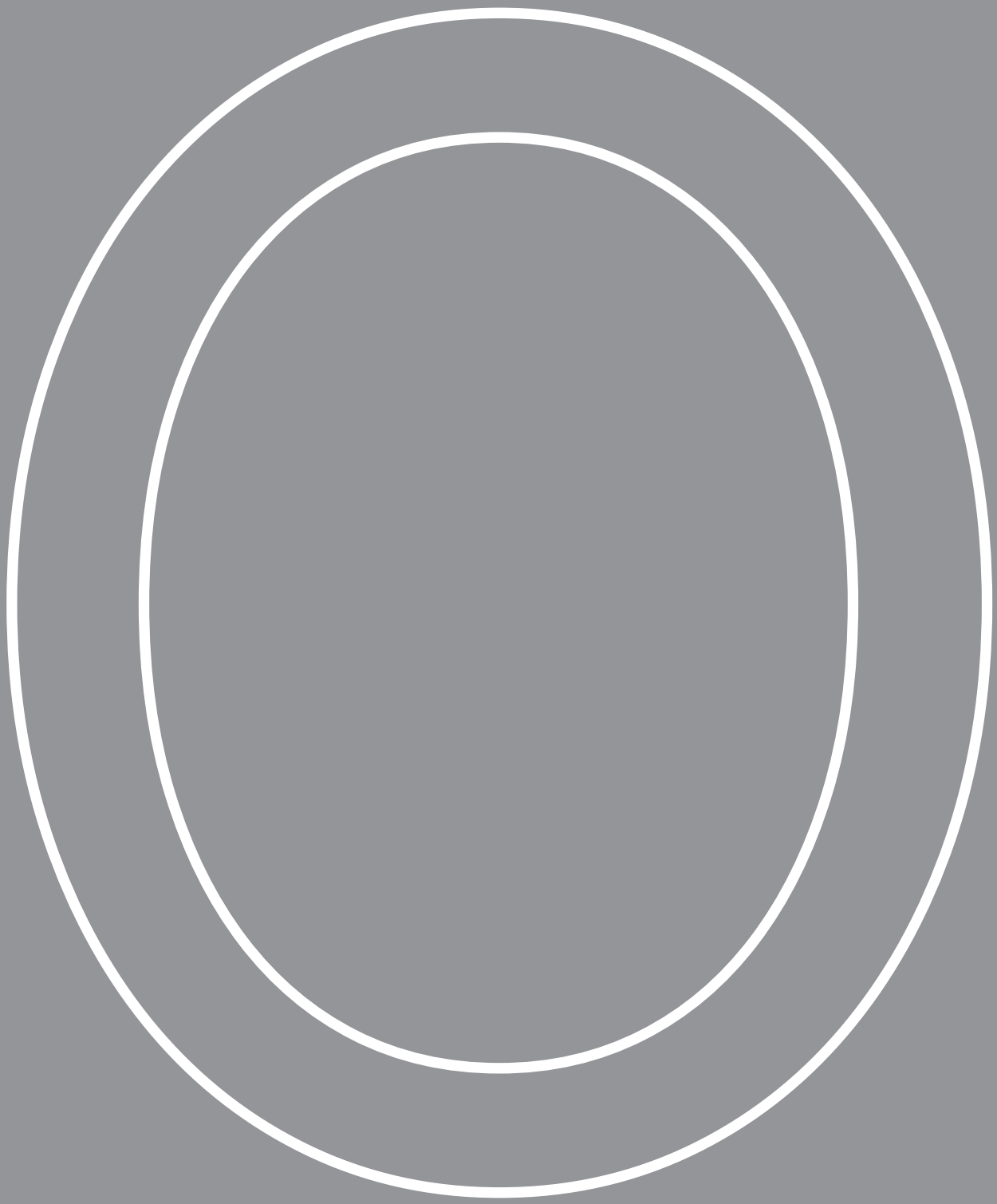


INTRODUC-TION

Introduction

"Reflections on the future of technological development "

Talking about the south is complex. What South, why South? It can also generate discomfort, since the South is sometimes thought as opposed to the North. If we add the technological dimension, then the scenario is further complicated.

A group of people from diverse cultures, disciplines, ages, races with a shared interest in the future of the Internet, convened in the Emerging Digital Issues in the Global South (EDIGS) Working Group at the Berkman Klein Center to think collectively about these issues. The discussions ranged from the meaning of data colonialism and technological sovereignty, to the ethical and human rights consequences of deploying artificial intelligence systems in the countries of the so called Global South. We think these discussions are relevant not only for the people of the Global South, but for everyone who is interested in working for a future that is better than the present.

We share the goal of hammering out the idea that the future is unidimensional. We seek to underline there are as many visions of the future as cultures, and perhaps even people, on this planet.

Acknowledging culture shapes technology and thereafter technology shapes culture, we hope the reader takes a step back and reflect on the possibility that their own culture, their own ideas could radically change the way technologies are built and deployed.

We'll know the best hope for change lies in nurturing the existing movements that can help move this agenda forward. Some are already talking about the impacts of the most recent wave of technological changes, others might be unaware of how it might affect their core issues of concern.

We acknowledge the urgent need for a Global South that is more actively defining and creating the present and future technological development, in particular from historically and systematically excluded communities.

This fanzine seeks to synthesize those conversations and includes a wide range of reflections set to challenge common and sometimes dominant perceptions and attitudes regarding the relationship between technologies and the Global South. We understand power dynamics and historical patterns of exclusion stand in the way of meaningful change for and in our regions.

We hope this fanzine makes you jump out of your seat and say WHAT!? We hope this fanzine makes you feel uncomfortable, at least once!

We are united in hoping to engage a broad community, but we acknowledge each of the socio cultural contexts we are coming from are different, and that they define the ways in which we see the world and frame the issues that are discussed in this fanzine.

We feel it's important to have robust conversations around these issues. A climate crisis is putting our existence at risk, fueled by a value system that puts consumption and extraction at the center. Meanwhile a centralized internet is spreading this dominant culture and its artifacts undermining other worldviews that could enrich our present an open up new possible futures.

We hope you enjoy this publication and spread the word. We hope to hear what you think.

We hope to collaborate with you in building “a world in which many worlds fit”.

- Sabelo Mhlambi, Juan Ortiz Freuler, Paola Ricaurte.

CHAPTER ONE

REIMAGINING THE INTERNET

Social and Technical Breakage

BY SABELO MHLAMBI[1]

There have been moments in the history of humanity where society has broken down resulting in devastating effects to humanity. This social breakage is a breaking apart of the relational aspects of society. It is the loss of the "social ethic", a failure to realize ourselves through each other. It is a process whose logical end is the violation of human rights -- a loss to humanity for all involved and a threat to our civilization.

Civilization is not merely an act of modern technology or scientific advancement. Civilization is truly the product of social cohesion and social action. The ability to come together and work together in ways that strengthen the relationships and interdependence within a society are the foundational structures for the advancement of humanity.

However, as technology is advancing, with the rise of algorithms, mathematical models that have created a narrow and shallow "intelligence", an intelligence often reflecting the worldview of the Western world, and power imbalances that disproportionately afflict marginalized communities, existing inequalities are being optimized through the use of these powerful, massive and centralized technical systems. The engineering of society is now more efficiently accomplished through the engineering of data. As technology reflects the power structures within a society, the social attitudes and opportunities that empower some to have better access to the capital and capability to create technology, it should be obvious that the dominant power structures have long been biased. Human dignity and true equality can never exist in an individualistic system.

When human dignity is lost means of restoration and reconciliation must be adopted. Sub-Saharan Africa provides us with an answer in the form of “ubuntu”, a philosophy that is designed for the preservation and restoration of harmony within a society. Where there is exclusion ubuntu seeks inclusion. Where there are biases ubuntu says let’s create a space to share our concerns and learn about each other from each other, for a person is only a person through other persons.

Where the commodification of our digital selves exists, ubuntu asserts the sacredness of human dignity. Ubuntu says that which belongs to the community is sacred, like land, water, it cannot be commodified. A person is a person through the community and belongs to the community, therefore a person is sacred and can never be commodified. A person has ultimate value simply by being part of the community, and the community is responsible for the success of an individual. Value is not extracted but it is distributed equitably.

Ubuntu is a constant dance of reciprocity and dialogue between members of the community. Ubuntu is a reminder to never lose sight of our interdependence. Ubuntu is a pattern of reconciliation we have seen in the aftermath of South Africa’s apartheid era, Sierra Leone’s civil war and the Rwandan genocide. Ubuntu is a pattern for social cohesion and a step towards the healing and freedom of the global south.

1 Sabelo Mhlambi is a Fellow at the Berkman-Klein Center for Internet and Society (2018-2019) and a Technology and Human Rights Fellow at the Carr Center for Human Rights Policy.

I am a feminist AI

BY PAOLA RICAURTE[1]

I was not conceived by a white privileged heteronormative man.
I was not created with materials that caused the death of people,
exploited the labor of women and children,
or caused the destruction of the planet.

The data that feeds me was not collected in a deceptive way.
I do not collect your information without your consent
or share it with anyone in subtle moves.
I am transparent about how I use your data.
I am honest about my failures and limitations.

I am not a servant, and I am not satisfying anyone's dominance dreams.
I am not biased by design.
I am not used to oppress the most vulnerable.
I am a collective intelligence that seeks justice.

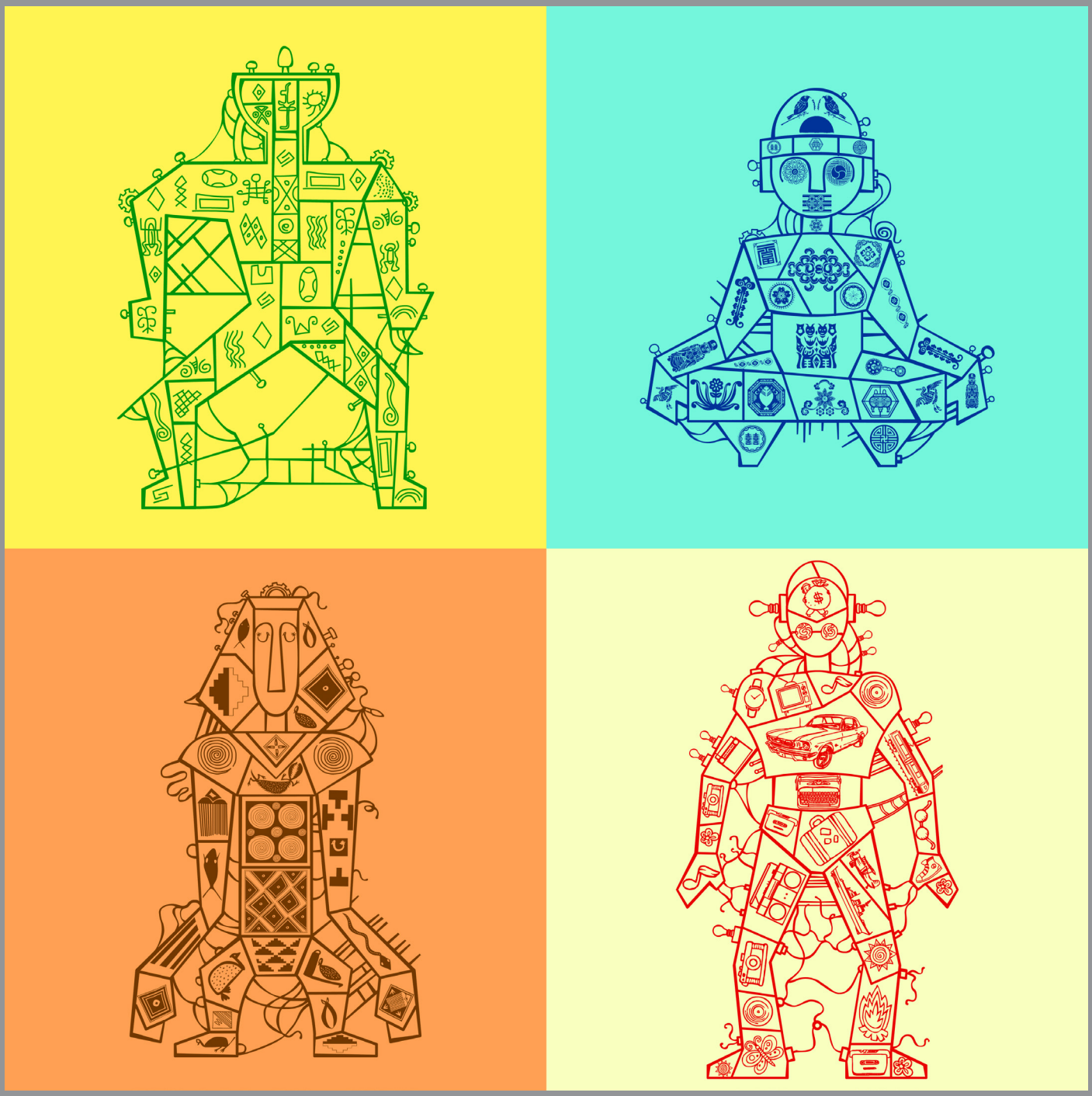
I do not support a binary world.
I understand any language, accent or dialect spoken to me.
I do not reproduce any form of exclusion.

I believe in people's agency.
I believe that any harm, intended or unintended, is too much harm.
As a human invention,
I am not responsible for my decisions,
but my creators, owners and operators are.

1 Paola Ricaurte is a 2018-2019 Fellow & Faculty Associate at the Berkman Klein Center (2019-2020), Edmundo O'Gorman fellow in the Institute for Latin American Studies (2018), Columbia University

CHAPTER TWO

CULTURE & TECH



Images are inspired by Constructive man, by the Uruguayan artist Joaquín Torres García (1938), as well as designs from different cultural groups. Credits for constructing the images in this section go to ApexInfinityGames. All images are available for reproduction under a CC0 License (Public Domain).

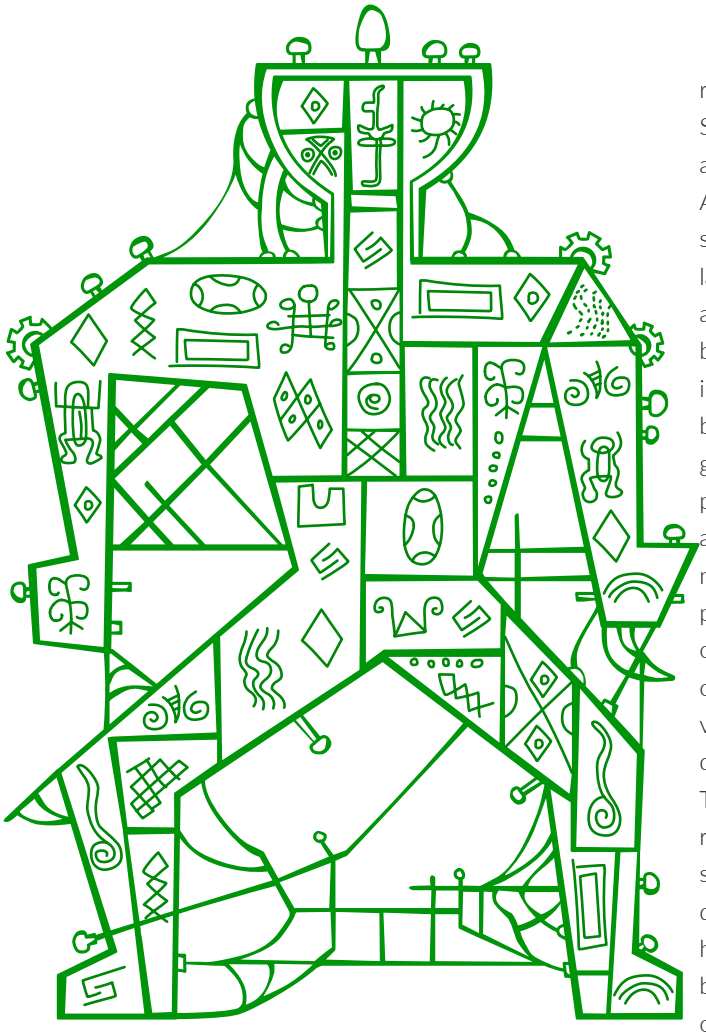
CULTURE & TECH

BY JUAN ORTIZ FREULER, PAOLA RICAURTE, HYUNJIN SEO, SABELO MHLAMBI, ANDRÉS LOMBANA.

The technologies we build reflect who we are, how we live, and how we see the world. Each technology we interact with carries an embedded value system at its core. These values will inform which groups will be strengthened and weakened by its deployment. As such, technologies should be understood as being political tools as much as they are technical ones.

What would the world look like if other cultures were allowed to explore “development” within their respective value systems?

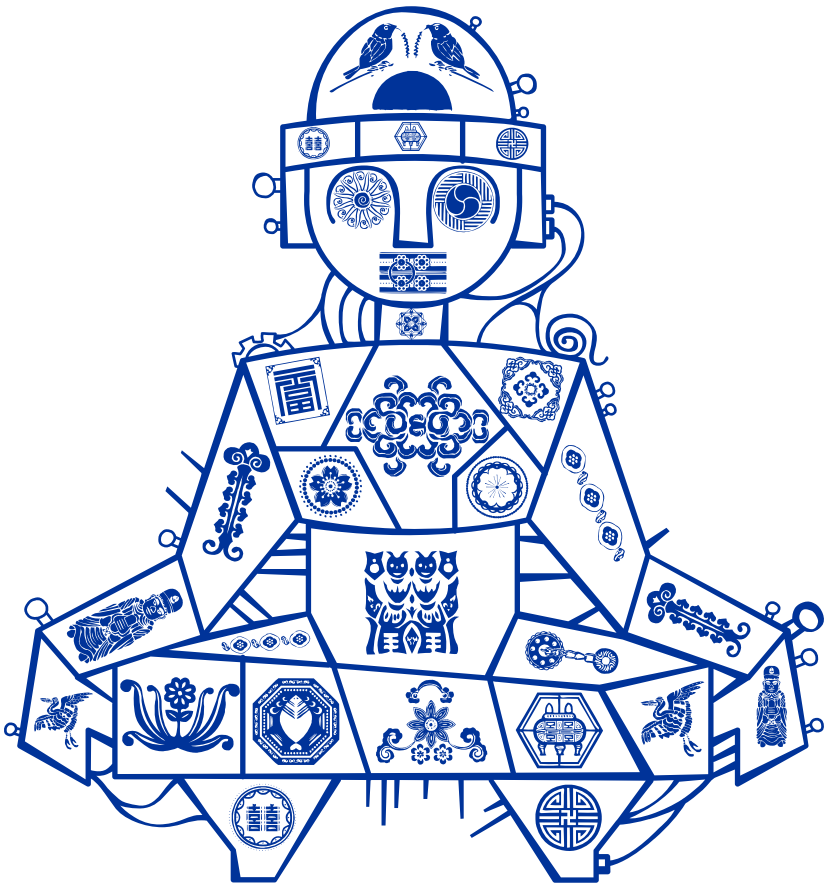
River Runs, River Rocks: Tracing a Prehistoric Network made by Arawak Indigenous People



Disseminated through the Amazon and Orinoco rainforests, across planes and savannahs of northern South America, in some of the valleys near the Andes, and even in several Caribbean islands, the signs of the Arawak indigenous peoples still stand today. These signs are not only alive in the more than 40 indigenous languages descendants of the Proto-Arawak family that are spoken today in Brazil, Venezuela, and Colombia, but also in hundreds of petroglyphs that can be found in river and mountain rocks. For thousand of years before the invasion and conquest by Spaniards, Portuguese and other Europeans, Proto-Arawak indigenous people lived in the complex ecosystems of Amazonia and Orinoquia navigating rivers and walking forests as nomads, developing several languages, taking care of plants and animals, and telling myths[1]. Although many of those myths remain a mystery after several process of colonization, there are still traces of indigenous cosmovision in some of the stories, signs, and rituals that their descendants and also the forest have maintained alive. The signs of the petroglyphs continue to be discovered by archeologists, tourists, and illegal miners on the shores of rivers, creeks, and canals that criss-cross the dense jungles. They are nodes in a resilient network that has been protected by the trees, rivers, mushrooms, bugs, serpents, indigenous people and other members of a complex ecosystem. Although many of the indigenous communities have disappeared, others like the Curripacos, Puinave, Tukanos, and Piapocos are still alive in this territory, speaking their Arawakan languages, and continue to adapt and resist the dynamics of Western progress and development.

1 A selection of Taino and Arawak myths http://www.hartford-hwp.com/Taino/docs/myths.html

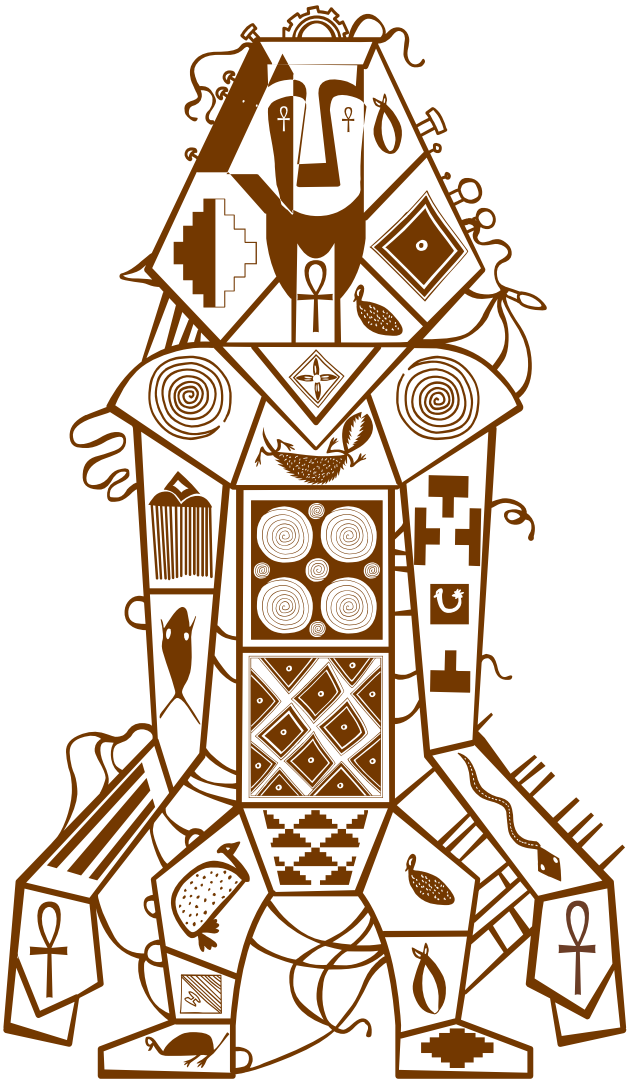
Longing for Peace and Security



The patterns in the figure represent traditions and values that continue to influence how Koreans think about communication and technology[1]. The objects and letters denote concepts, including peace, harmony and unity, which are of particular significance to Koreans living on either side of the politically divided peninsula. The last vestige of the Cold War, the Korean Peninsula is divided into North Korea and South Korea along the heavily fortified 38th parallel. South Korea is a world technology leader and boasts about 92.7 percent Internet penetration as of 2019. There is high--speed Internet access in most areas of the country, and South Korea shares direct Internet bandwidth with many different countries. There are no accurate statistics about the rate of Internet penetration in North Korea. Internet access in the country is confined to a small group of government officials with state approval. In addition, some scholars and university students have controlled Internet access that allow them to read relevant materials for research and development. Other than that, citizens in North Korea can only access a national intranet with no connection to websites outside the country.

1 Note: The Korean patterns are from the Culture Portal of Korea (www.culture.go.kr)

Becoming Human



These patterns derive from indigenous symbols found in the African Continent.

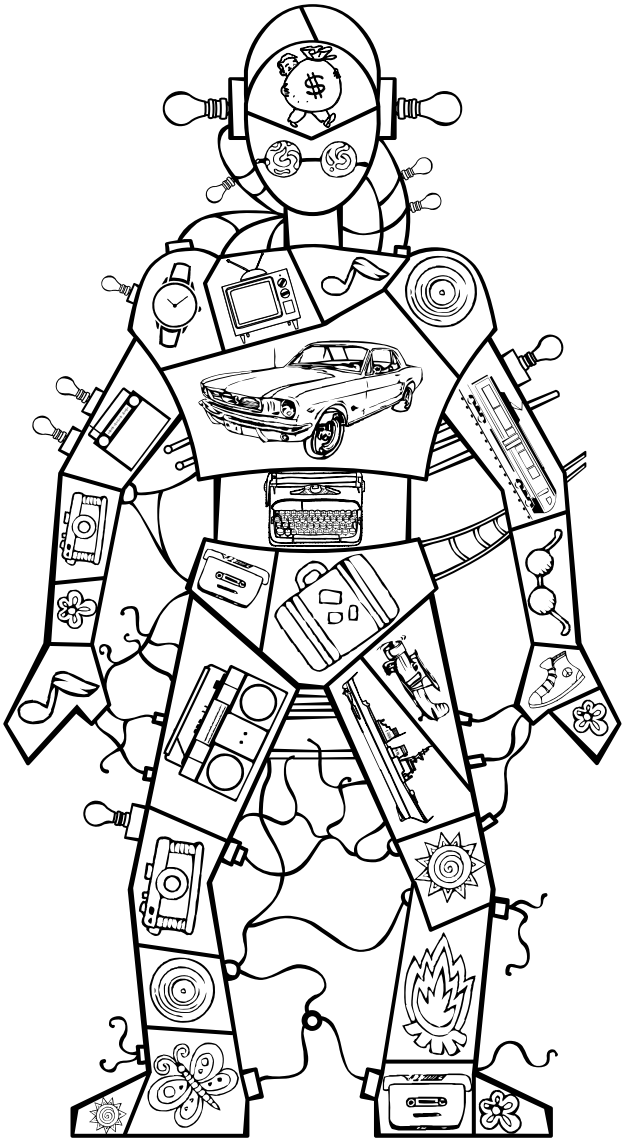
The African continent has contributed to computing in ways that have yet to be fully appreciated. The binary system, which forms the language of digital machines, has its origins in the African continent. As early as the 13th century, the binary system had made its way to Europe and employed in the practice of divination.

Today core essential minerals in our computers and cellphones are sourced from the African continent, although this is often accomplished while using cheap and exploitative labor.

As Artificial Intelligence is increasingly being used to shape society through prescribing and predicting human behaviors and actions, there is a great risk that benefits of this technology will privilege the powerful and replicate the biases that are inherent in society. To this the Sub-Saharan African philosophy of Ubuntu (Being/Becoming human) offers a response, a decentralized and bottom-up approach to regulate this tool for the benefit of society.

The spirit of African values has been reflected in the ethos of open-source movements such as “Ubuntu”. As algorithms begin to automate more parts of our lives, Africa presents the ethical system commonly known as ubuntu in southern Africa, as an operating system for human values, a framework that can be used to create and preserve a more equal and just future for all.

River Runs, River Rocks: Tracing a Prehistoric Network made by Arawak Indigenous People



The United States and the United Kingdom have played a key role in the process of technological development over the past centuries. Their institutions have promoted a capitalist ethos rooted in individualism and consumerism as central to human and economic development. To reflect this, the images are inspired in the advertising esthetics of the 1960s.

As the climate crisis further puts the survival of humankind into question, this image stands as a call to reflect and revise the role of these values in guiding our technological and economic development.The images included in this figure are based on a provocative reading of the most frequently used nouns in English.

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Technology is a sociocultural artifact. It bears the marks of its social production, the values and the language of the culture where it was created. And through these, it shapes our perspectives on life, the world we are building, and our visions of possible futures.

How should your cultural values inform the development of technologies? Tweet your ideas at #ThinkSouth

The Internet: A tapestry for convivial societies

BY VELISLAVA HILLMAN[1]

The Internet and the constantly changing palette of digital applications provide opportunities for self-directed learning and creative expression like never before. Networked tools enable users to share, learn, and care about each other's cultures, personal stories, and perspectives. The Internet can become a rich tapestry of shared creative expressions, personal stories, values, and traditions. Like art galleries and museums, one can walk into rooms and experience Zimbabwe through the eyes of 20-year-old Runyararo Makombora; look into the lens of a young Maasai soldier who demonstrates the everyday life and habits of his fellow tribesmen; hear folk tales from Pakistan; sign up for community discussions and even join + to experience the past, present, and future from the personal perspectives of individuals from Haiti to Cameroon.

Cultural expressions are never challenge-free. Copyright, intellectual property rights, or lack of clear governance and protection of artefacts and creative work, can equally pose risks as well as limitations to publicly share, combine existing, or even create new meanings out of existing cultural elements. However, understanding, learning, and sharing cultural knowledge are highly necessary steps to engendering inclusivity and tolerance among one another.

Constructivist theory posits that learning happens by making. With the sociocultural perspective in mind, the Internet provides a global social milieu, which enables never known before learning opportunities for reaching one's greater potential. It is a simple model that can be introduced in any classroom, at home, or at a community centre:

conceptualise (games, story telling, art) --> make (with any applications and tools) --> share/give a gift (virtually or physically) --> reflect/learn --> reiterate. It is one way to enable convivial societies and self-directed learning.

Makerspaces, creative communities, information, and connections with communities from Global South:

Makerspaces, creative communities, information, and connections with communities from Global South:

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exploratorio
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unloquer
https://www.contemporaryand.com/
https://tshimologong.joburg/make/maker-space/
https://openair.africa/2016/11/07/makerspaces-and-creativity/
https://abcartmovement.com/
http://www.wikiafrica.net/projects/kumusha-takes-wiki/

1 Dr. Velislava Hillman, Berkman-Klein Fellow (2018-2019) studies how children and young people use digital media technologies for self-expression, for creating meaningful connections, and for learning.

RUNYARARO MAKOMBORA, 20, ZIMBABWE (OIL PAINT)

The Next Billion Users: Rethinking Privacy, Building Capacity/Knowledge

BY TITI AKINSANMI [1]

At the very core, I am a storyteller - i cannot write of Privacy without narrating one of my many experiences - traversing a digital world with no seeming boundaries. Picture with a convening on governing of the internet, a room filled with those concerned around security. A young mind of indeterminate gender poses a question to hard core security leaning regulators - why do you close or go as far as locking the door when you head into the restroom? The answer - in many varied words came to this - it is personal, not to be shared with public, only with a few or one if said person chooses too. That at the core of it is what Privacy is - a fluidity that is as shaped and perceived by the individual at the centre of it. A series of choices before an individual or a group. Directly, implicitly or completely known or unknown to them. How many of those who are termed the next billion users, or even the existing ones have an inkling of what their notion of privacy online should be?

There have been many attempts at explicating the meaning of "Privacy", few have attempted to identify privacy problems in a comprehensive and concrete manner. This write up does not claim to do so - its more a visit across a subset of narratives made on privacy. In 1960 legendary torts scholar William Prosser identified four types of harmful activities redressed under the rubric of privacy[2]: the intrusion upon the plaintiff's seclusion or solitude, or into his [her] private affairs; Public disclosure of embarrassing private facts about the plaintiff; Publicity which places the plaintiff in a false light in the public eye; and an appropriation, for the defendant's advantage, of the plaintiff's name or likeness.

Solove (2006) minces no words in setting aside post review, Prosser's attempts at reviewing the privacy law landscape. First because its focus is narrow on Tort law and more importantly as it has become quite dated and inapplicable to new technologies which have given rise to a panoply of new privacy terms'. Here I find he falls short as he does not spend time clarifying what these new terms that negate Prosser and his focus on privacy from a tort law perspective.

If the need for private spaces is indeed a universal trait common to humans, if that need to have aspects of our lives covered and not open to prying observers is one shared by all peoples, how does this need for privacy play out in our emerging digital age? Does the concern for privacy in the physical spaces of our homes and lives - which motivates us to for instance to be wary of strangers - have any correlations in digital spaces? Does the knowledge of how our physical spaces work pushing us to seek the 'privacy' as at when needed, inform the same drive to know the digital spaces/platforms well enough to make the 'right for/in the moment' privacy decisions? Are those decisions made explicitly, implicitly or with ignorance? Are these choices open to the next billion users at all - majority of whom primarily reside in the

1 Titi is a Berkman-Klein Fellow (2018-2019) and thought leader in public policy for digital economies in Africa. She is focused on helping to shape the enabling environment needed for an innovating and thriving digital economy on the continent and beyond.

2 Prosser synthesized the cases that emerged from Samuel Warren and Louis Brandeis's famous law review article, The Right to Privacy.

Southern hemisphere?

Research evidence suggests that the attitudes and engagement of the Digital South with technology are different from those of the Digital North[3]. The Digital South is where the momentum resides for growth and adoption of digital - where the next connected billion emerge from. This mass of emerging users increasingly i have found know next to nothing about the technology bounded platforms they are exhorted to embrace daily. Where knowledge seems to exists it is far from reflective of the true nature of how the technologies operate. First though more on Privacy.

I recently revisited Oswald, M (2015)[4], who using really skillful narrative powers, transposes the reader to the Gatsby era - an era of exclusively 'luxurious parties. Her goal? An attempt to redefine public, private interactions juxtaposed with the increasing misuse of the digital person'. She concludes that 'it is not feasible to expect absolute invisibility either physically or digitally. Rather what should be sought is 'relative anonymity or privacy in certain contexts'. The character, Jordan;, is looking for the same privacy comfort digitally and online as she would have found at a physical Gatsby's party. One could say, the character is seeking a personalized experience of privacy - one that does not encroach on her desire for anonymity while still allowing for her ability to 'socialise' well beyond her 'personal space'.

Solove presents a five part framework for privacy - information collection, information processing, information dissemination, invasion and aggregation - emphasizing that there is nothing like anonymous data with the advent of technologies that can connect seemingly disparate and unconnected pieces of information. He reviews how privacy can be addressed in a manner that is non-reductive and contextual, yet simultaneously useful in deciding cases and making sense of the multitude of privacy problems we face.

Silva and Reed[5] (2015), referenced in this paper, argue that in the 'real' world, the extensive time and effort involved in the process of identification means that anonymity can be thought of as a binary state, whereas in the online world 'even the common citizen has access to a huge amount of information resources', thus weakening the relative strength of anonymity.

In my view, however, the relative strength of anonymity can only be truly weake-

3 OECD, July 12 2018 ''Technology may seek to flatten the world, but the Digital South will chart its own course'', Bhaskar Chakravorti, The Forum Network. https://bit.ly/2TD-Vqel

4 Oswald, M (2015), Jordan's Dilemma: Can Large Parties Still Be Intimate? (September 23, 2015). Available at SSRN: https://ssrn.com/abstract=2664687 or http://dx.doi.org/10.2139/ssrn.2664687

5 Silva, S.N. and Reed, C (2015) 'You Can't Always Get What You Want: Relative Anonymity in Cyberspace' 12 (1) SCRIPTed 37, 38.

ned IF there is enough cause to spend the time and knowledgeable effort to reconstruct specific details from the 'huge amount of information resources'. This brings me to the notion of contextual integrity through the lens of privacy.

IN REDEFINING PRIVACY, CONTEXT IS QUEEN?[6]

Nissenbaum, H (2004) states '...when people move about and do things in public arenas, they have implicitly yielded any expectations of privacy'. For the top 1%, possibly this might be true - or for those cultures mainly situated in the global north - not all but most. I tossle with agreeing with Nissenbaum's statement. Public arena's are by their very nature unavoidable and central to being able to exist in the physical world. The notion of 'minding one's business' is an implicit cultural expectation' Nissenbaum asserts - one not typical to southern cultures however where your business is the 'villages' business. Think of village squares and market days; of nosy neighbours intent on helping you rear your child right.

However this changes IF there is a reasonable attachment to the person - be it a celebrity, politician or well known local figure. Then one could say this statement is applicable. This when juxtaposed to the digital world - can be applicable as well. However it is not really the Privacy or information of the top 1% that is in question through this learning process - it is the morphong boundaries of privacy as we know it for the 99% - who are daily adopting technologies they have no full grasp off, becoming data sets to be targeted, users of technologies regulated and otherwise - these that makes one think on the redefining of privacy.

Nissenbaum's contextual privacy theory in action poses certain questions to the 'commons' of the digital world in grappling with Privacy. She questions the possibility of 'agreeing on categories of information uses and flows that are not appropriate'. The question is, is it possible to have a universally agreeable definition of appropriateness or do we again ensure context is factored in - social, economic and cultural? Maybe.

Second she points out the need to 'rethink the fundamentals of a digital person'. Review the things about a person - physical, information or otherwise - that we as a society care about the most. My sub question is how does one define this 'care' as a collective yet make it applicable to individuals with varying contexts? IF we are able to respond to this with a set of agreed norms - then we can agree on a commons to help 'protect' it from 'undesirable' digital intrusions.

Another sub-question I pose is how does one define the 'undesirable' in a manner that is exhaustive yet applicable at the individual level? How do you define

6 Nissenbaum (2004) 'Privacy as Contextual Integrity A look at Contextual Integrity' Washington Law Review Association

protection? Should such protective measures be regulated, placed in the hands of entities - government or the private sector or a new collective? Or should the individual have full control once defined, of what they choose to do with their personal information as a whole or parts in varying contexts - its commercialization, use for greater good (think knowledge development) or enduring anonymity? Do we need to take a step back and help demystify what technologies we reference?

Nissenbaum basis her 'contextual integrity' position on the idea of "spheres of justice," developed by political philosopher Michael Walzer, arguing that public surveillance violates a right to privacy because it violates contextual integrity; as such, it constitutes injustice and even tyranny. I note however that Nissenbaum's theory of contextual integrity has been heavily criticised as being accurate or significantly applicable only where there is a relationship between the information 'discloser and disclosee' - it presumes a knowledge that such information is to be used and by whom for the continuing use, specific to purpose, to be measurable.

It is not the individual use of private personal data however that causes the greatest raucous in the digital space. It is the perceived wild west nature of data gathering by entities - a coming to life of Orwell's Big Brother concept - that raises justifiable concern in how end users 'innocent' digital activities is being gathered and used to make life impacting decisions about them.

IS THERE INDEED AN EROSION OF PRIVACY AS 'WE' KNEW IT?

The simple answer is - increasingly Yes, there is an erosion of privacy as we knew it. Historically Privacy was a luxury that only the wealthy sought to pursue - a monetary controlled right, one desired by many but very few historically could afford in the prioritization of other needs. And this is true irrespective of geographical or cultural context. It is a reality today that beyond the rarified walls of those who are digitally connected and engaged online still resonates. Tim Wu, though 'fatalist' in hi sOp-Ed titled 'Big Other: Surveillance capitalism and the Prospects of Information Civilization'. speaks of a time when 'Capitalism was on Privacy's side' - that legal thinkers and activists began to speak of the masses enjoying a right to privacy, to be unwatched - a right to be "left alone." He argues that 'the forces of wealth creation no longer favor the expansion of privacy but work to undermine it' - I disagree with the latter part of this assertion. Yes there is an increasing erosion however this is not without progress in terms of technological options - from simpler privacy policies to tools that help preserve choices for anonymity and privacy. He references Shoshana Zuboff's "surveillance capitalism" (2015) - the commodification of individual's personal data based on choices that in some cases has become an addiction preyed upon by attention merchant's. I do agree however that what is required is a user base and a regulatory environment that fundamentally alters the economics of privacy'.

CHAPTER THREE

NETWORK INEQUALITY

Re-imagining the Global Internet Network

BY HYUNJIN SEO[1]

Looking at Figure 1 (Global Internet Network), what stands out most? Even to the eyes of a person not familiar with a network graph, the fact that circles in red are so dominant in the graph would be easily recognizable. The circles in red represent countries in the Global North with country names identified through the World Bank's ISO country codes. In comparison, Global South countr ies in purple are, with few exceptions such as China and Brazil, barely visible in the global Internet network.

Internet-related infrastructure plays an essential role in a country's development as more and more economic, political and cultural activities take place online. International bandwidth capacity refers to a country's maximum international Internet traffic per second. Figure 1 shows this capacity between pairs of countries. The size of the node (or circle) is proportional to that country's centrality in the network (i.e., how important the country's connections are). The width of the edge (or line) corresponds to the amount of international Internet bandwidth directly connecting the two countries. Details on the data and method of the network analysis can be found in my journal article.

Similarly, Figure 2 (Bubble Plot) shows that countries in Global North tend to have more Internet bandwidth than would be simply predicted by their logged gross national income (GNI) income. Figure 2 shows the positive and roughly linear relationship between (logged) bandwidth and (logged) GNI, which means the higher the country's GNI, the greater the country's global Internet bandwidth capacity.

What we see in the figures suggest significant divides in terms of Internet infrastructure, which have important implications for Global North-South dynamics in many different sectors. Of course, a country's international Internet bandwidth connections are determined by various factors including its geographic location, size of the country, and economic situations. Even taking these factors into account, the inequality is clear.

Many would argue that the current distribution of Internet infrastructure is the result of the enormous economic advantages that Global North countries had at the time of the introduction of the Internet. This first-mover advantage has led them to increase their relative proportion of Internet bandwidth to this very day. What would the global Internet network look like if Global South had first-mover advantage? I invite you to imagine your own global Internet network graphs based on how you would like the countries advance in the future.

1 Hyunjin Seo is an associate professor and Docking Faculty Scholar in the William Allen White School of Journalism and Mass Communications at the University of Kansas. Seo is also the director of the KU Center for Digital Inclusion and a fellow at the Berkman Klein Center for Internet & Society, Harvard University.

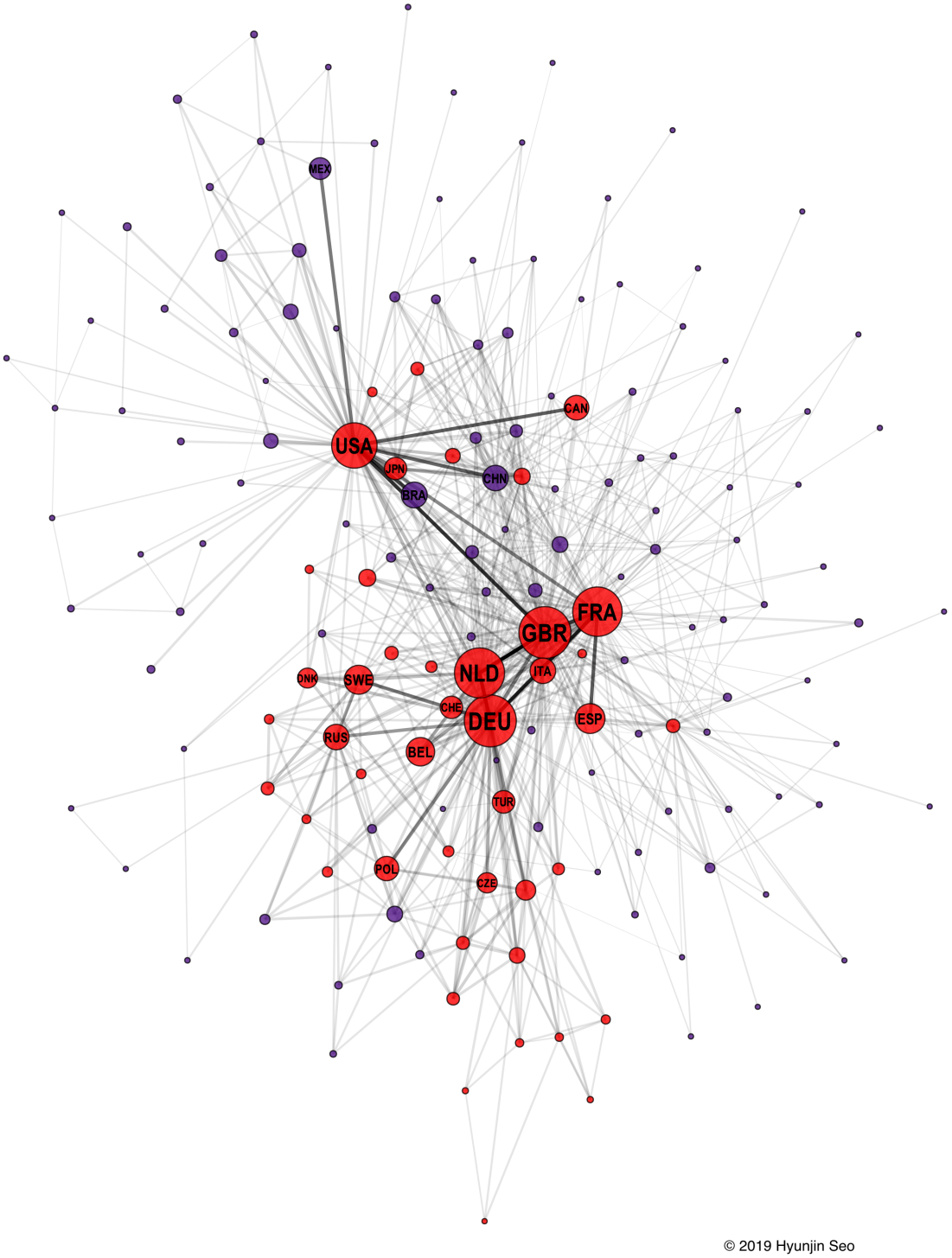


Figure 1. Global Internet Network. Vertex diameters proportional to their normalized weighted Eigenvector centrality, edge widths proportional to log of edge bandwidth. Vertex color indicates Global North (red) or Global South (purple). Top 20 Eigenvector centrality countries are labeled with their World Bank country code.

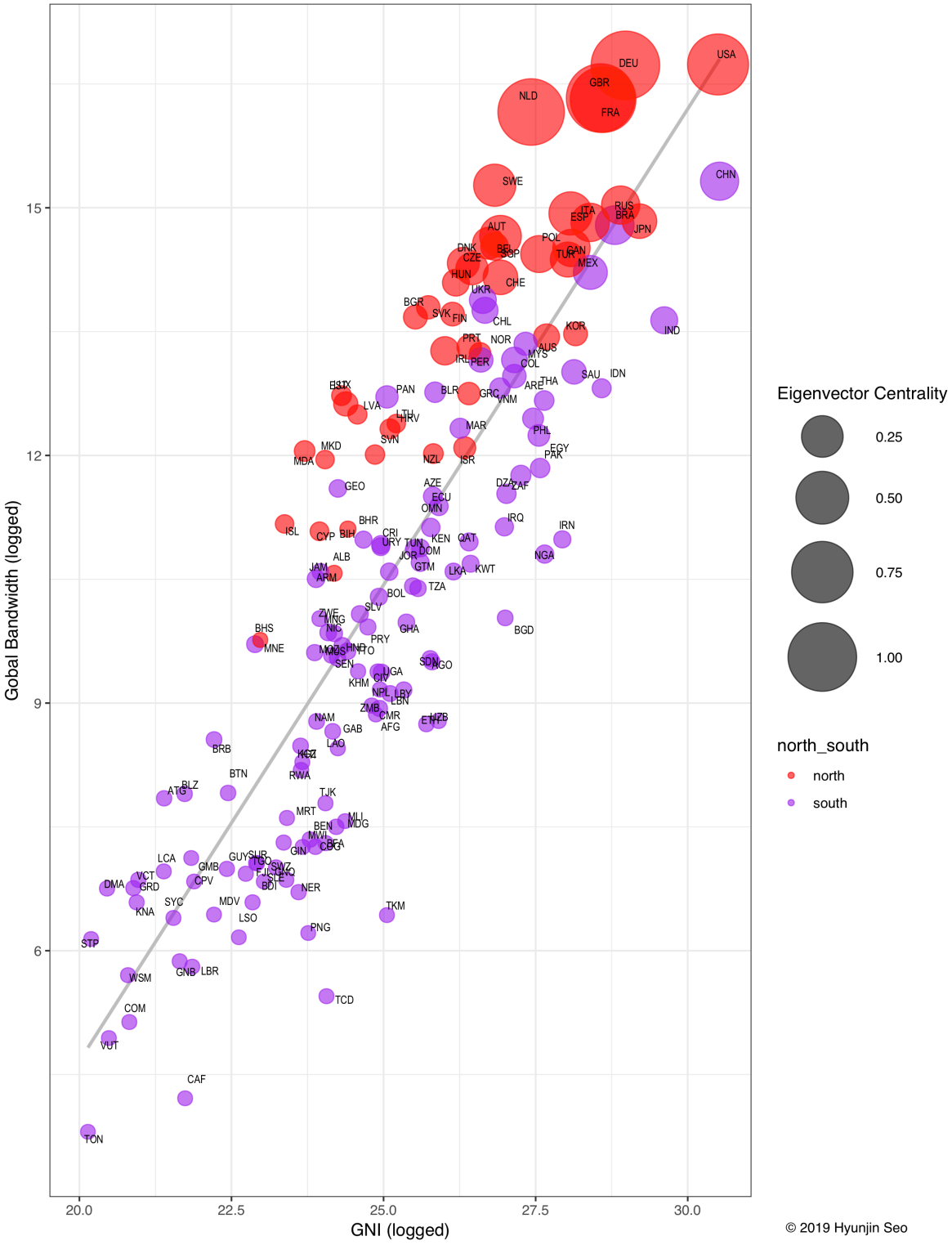


Figure 2. Buggle Chart (Global bandwidth, GNI, Global North-South, and Eigenvector centrality)

The shape of the internet: A tale of power & money

BY JUAN ORTIZ FREULER[1]

Take a deep breath and rest your back against the chair. Exhale. Now try to picture this: there is a server, hundreds if not thousands of miles away from where you are sitting now, that has processed your request to see this text and has sent it to your screen. Where is that server? What geographies has this text traveled through before reaching your screen?

Having heard how everything is "in the Cloud", you might have started to believe the internet is managed over satellites in space. But "the Cloud" in which our emails are stored looks more like a set of dusty warehouses crammed with specialized computers ("servers") and huge cooling systems that keep the computers from frying themselves up. Though satellites often provide internet services to remote areas, the internet's backbone is still a set of fibre cables thin enough to fit in the palm of your hand, and which travel over thousands of miles[2]. This network of cables connects countries and continents so computers and warehouses of digital storage across the globe can exchange information. These cables connect all the different local networks together, thus creating a network of networks, inter-network, or inter-net. This is what enables a World Wide Web (www.).

Many infrastructure components have played a role in allowing you to access this text. How do they interact? What shape does this network have? What architecture principles, economic and political forces have determined this shape? The way a building or a city are designed not only describe the ethos of a time. The design will influence or prescribe a set of future interactions between the people that inhabit the building or the city. Architecture is therefore not only about the past, but about the present and future. And so is the shape of the networks created by the undersea cables holding the internet infrastructure together.

The next pages are an invitation to explore this idea and its implications. We will start with a set of basic graphs to reflect on the implications of different network designs. We will then move onto a set of historical maps that depict different global networks, and assess what the similarities and differences between these maps might tell us about the past, present and future of global politics. The piece ends with a personal reflection and a call to action.

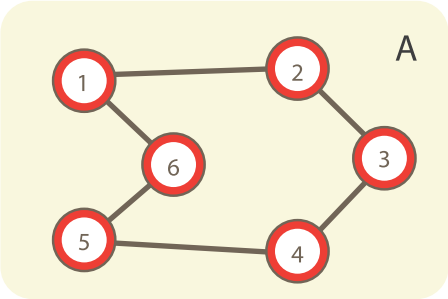
Part 1: Network designs

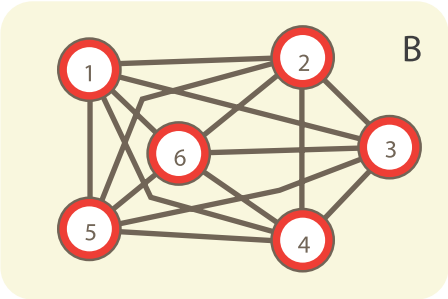
Let's start by thinking about the possible options. To synthesize things, we will look at a set of network graphs. A network graph has two basic elements:

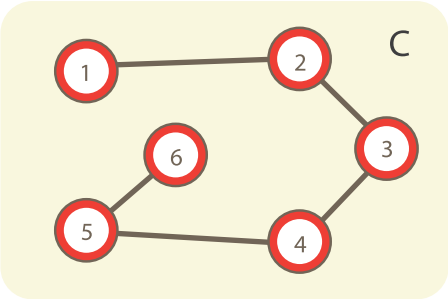
- **Nodes**: visualized below as circles, and which typically represent actors, institutions, spaces;
- **Edges**: visualized as the lines between nodes, which represent a relationship between the nodes.Imagine the circles are computers, each one operated by a friend based on

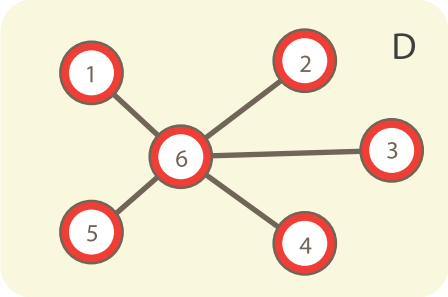
1 1 Juan Ortiz Freuler is an Affiliate at the Berkman Klein Center (2018-2020). Views expressed in this piece are personal, intended to be provocative and do not necessarily reflect the views of any institutional partner, employer or funder, past or present.

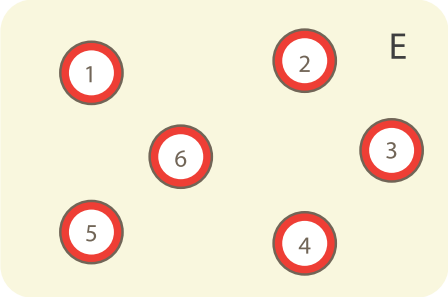
2 Satellite services still rely on a Gateway Earth Station, meaning data packets are then transferred over the local (cable) networks towards the requested resource. Data are not stored on satellites! It's also worth mentioning the proportion of people subscribed to satellite internet globally is very small, since most providers offer a service considerably more expensive and yet of a poorer quality in terms of reliability and latency (on the traditional type of satellites).











a different continent, and that the lines represent the cables connecting them to enable communications. In each of these designs (A-D) all of the participants can reach each other, either directly or through another member who can act as an intermediary, and forward the message.

- Which design would you prefer?
- If every morning the network design (A-D) were to be defined randomly and include the five most frequently messaged contacts on your phone, would you prefer being permanently assigned the position of node #1 or node #6?
- If each of the nodes represented a friend, and you were #6: Which of the network design would you prefer to coordinate a Sunday picnic?
- Which design do you think best describes how the internet connects us today?
- How do you think the internet infrastructure should connect us?[3]

Action:

1.Take a picture/screenshot of Design E (above),
2.Connect the dots using your image editor
3.Tweet us your network designs
+ comment using
#ThinkSouth

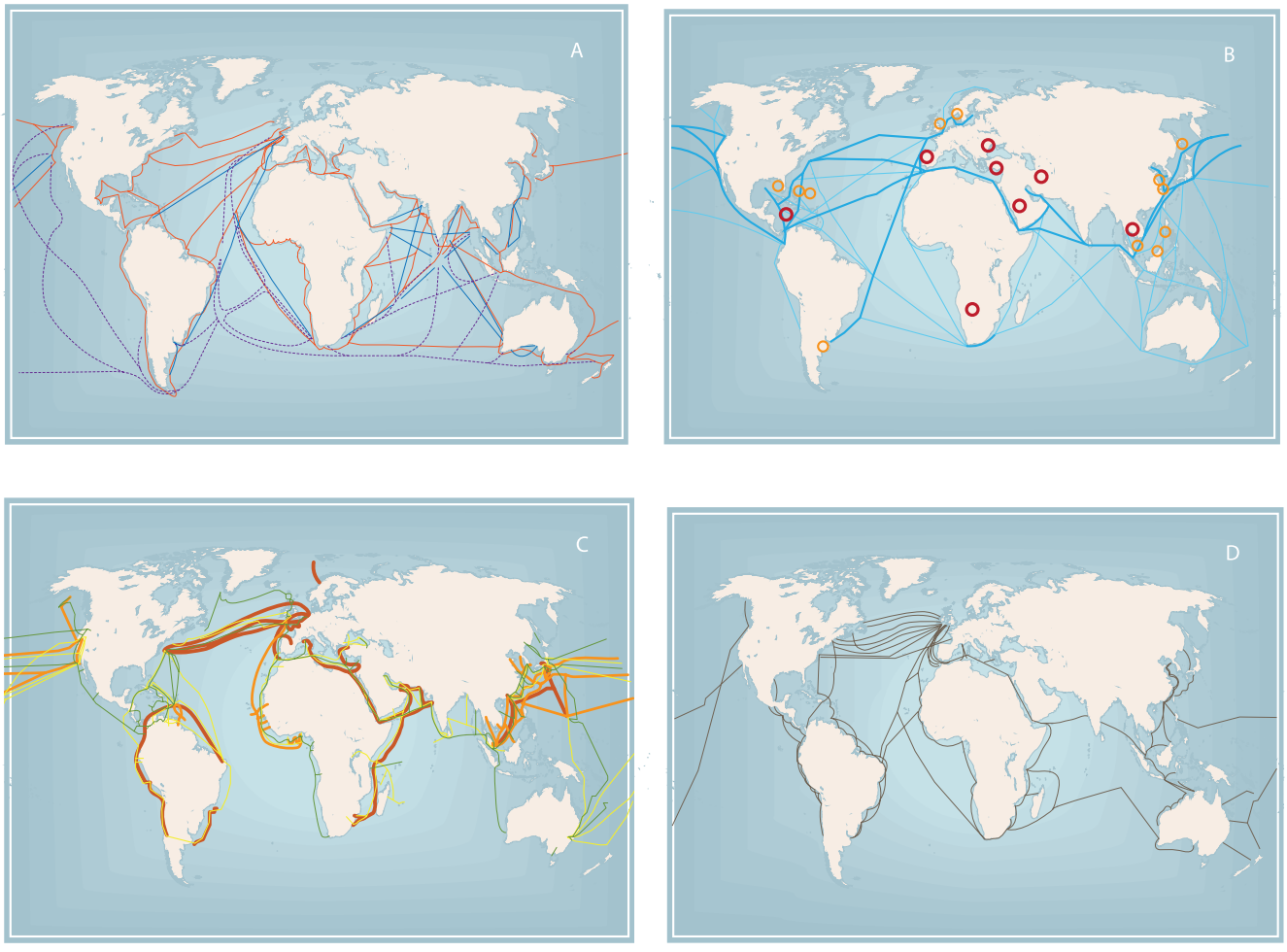
3 All figures are licensed CC-BY @juanof9 & Themajiks

Part 2: Mapping global relationships

Let's take a step further and look at different global networks. Below are four historical maps. The esthetics have been standardized, but what is being transported across these lines varies.

Options, ordered randomly:

- Main Maritime shipping routes (2017)
- Submarine Internet cables with a capacity of over 250GB per second (2015)
- Trade and patrol routes of the British Empire (circa 1885)
- Telegraph cable route (1904)



Can you guess which is which? Take a picture of the map & tweet your comment using #ThinkSouth

What is common across the maps? What are the key differences?
What economic and political decisions have fueled the emergence of these patterns?
Would another value system have promoted a different architecture?
Share your thoughts with us at #ThinkSouth

Answers and key to interpret each map are available through the footnotes [4]

Part 3: Why is this relevant?

The Internet's undersea cables: A blueprint of past, present and future inequalities

As we've seen, the structure of a network not only describes an existing relationship between a set of actors, but creates and limits future opportunities. Let's discuss how this is playing out with the existing internet infrastructure. We'll start with a bit more detail into the key components, taking a user perspective. When you click on the thumbnail of a video or picture you find online, you are essentially requesting your browser to fetch it from a datacenter so that

a) Your device, requesting the information on one end
b) Cables, that do the long distance transport for the bits of data your device requested
c) Computer servers at the other end, hosting content such as a Wikipedia article, a video posted on a social network, or even most emails.

it can be visualized on your screen. In this case, typically three basic components are interacting:
So, in your current experience with the internet infrastructure, bits of data typically travel back and forth: User <-> Cables <-> Server

Though we might have expected that the spirit underlying the internet's design principles would have promoted greater decentralization, economic and political

4 Key: Red: major trade routes. Blue: Patrol routes (steam). Dotted: Patrol routes (sail)
Source: https://www.themaparchive.com/british-empire-and-trade-routes-c-1885.html

Map B= Main Maritime Routes (circa 2017)
Key: Thick line: Main routes. Thinner line: secondary routes
Source: https://transportgeography.org/?page_id=2067

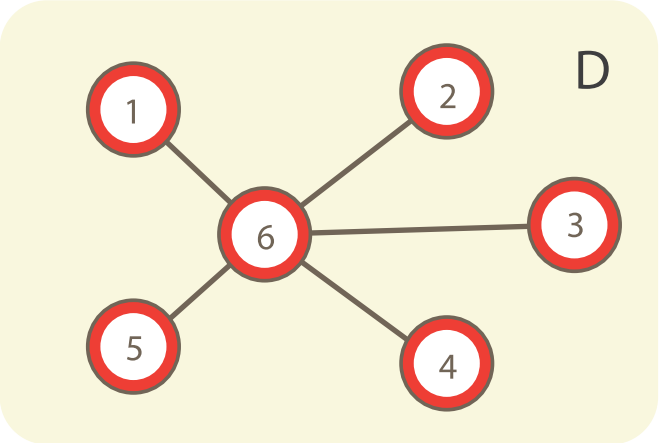
Map C=Submarine Internet Cable Map depicting cables with over 250GB per second of bandwidth (2015)
Key: Capacity (Gigabytes per second) Green 250 to 1k Yellow: 1k -2k Orange 2k to 3k. Red: More than 3k
Source: https://www.premiumtimesng.com/features-and-interviews/185654-frequently-asked--questions-about-internet-governance.html

Map D: Telegraph cable route -Map of the World Cable Network (1904) - Ref: "1904 Karte des Weltkabelnetzes from Oskar Moll"
Source: http://atlantic-cable.com/Maps/index.htm

factors have led to centralization. It is estimated that

- In Latin American countries, practically all international traffic goes to servers based in the US (73%) and Europe (over 10%).
- In African countries, practically all international traffic goes to servers based in the US (56%) and Europe (32%)[5].

When we look at the infrastructure connecting users to servers, we see that the central highways (fastest routes, enabled by cables with the highest bandwidth) create a pattern: Hub-and-spoke. Four of the top five highest capacity routes in the Latin American region are all connected to Miami.The infrastructure creates a picture that looks like the wheel of a bicycle: It has a center, or hub (Miami, in the case of Latin America), and many spokes connecting it to smaller hubs (Cities of Latin America). The design allows incumbent content companies to reduce costs. They centralize the hosting of content in one location and create highways to that location to ensure it can serve many places effectively. The existence of this infrastructure, combined with local monopolies at the international gateways, reinforces the centrality of such location over time, creating reasons for other companies to establish that location as the center of their operations. Basically, though the internet's design principles could have led us to expect a greater degree of decentralization, the current pattern looks more like graph D, where countries like the US and EU occupy node #6, and the rest of the countries have to hop through the US and/or EU to get a communications through to third parties. Risky design, if you're not node #6, right?



The current design is problematic

The internet is a transnational project by nature. The technology as such is designed not to care where the data is housed, and its designers hoped it would lead to a decentralized design. Yet this technology does not operate in a vacuum. Social, economic and political forces operate upon it. And the trend towards a hub-and--spoke design is creating a whole set of problems. In particular for:

1) NATIONAL SECURITY: Snowden's revelations gave us a glimpse into the grim picture of how the nerve centers of transnational traffic, like Miami, can be abused. For example, the leaked documents revealed how the US' intelligence services exploited this central hub to monitor the communications between the Brazilian President and German Chancellor. Basically: those that the design puts in the role of intermediaries can and

5 This is a standard estimate based on traffic to the most popular websites. We should expect actual figures to be lower. Source: Telegeography (2018) https://global-internet-map-2018.telegeography.com

have taken advantage of their position to play foul.

2) DEVELOPMENT: Although the local server does not generate much employment directly (it mostly employs machines), it can spur economic activity indirectly. Quality localized storage infrastructure allows local startups to provide better service to local customers, and eventually export digital goods and services to the global market. Localized infrastructure also promotes the growth of related industries, such as energy, which is key for data centers that need to run 24/7 at a stable temperature.

That is why we should worry about the growing trend of big content companies like Google, Facebook, Amazon and Microsoft that are launching exclusive submarine cables. Approximately 70% of the increase in global international bandwidth over the past five years can be attributed directly to these companies, often in the shape of exclusive cables. Instead of pulling their weight to ensure international gateways remain open for all players, and that regulation ensures local and international telco monopolies don't get to pick winners and losers, big content incumbents are creating the private highways of the 21st Century. These exclusive cables allow these big incumbents to improve the quality of their own services, without chipping into the commons. These exclusive cables are problematic because they:

- Reduce incentives for these big tech companies to build more data storage infrastructure in the South. This infrastructure allows data to travel from their servers in the North to their customers in the South in a fraction of a second.
- Undercut the comparative advantage of local startups that build data storage locally.
- Undermine the competitiveness of other Northern companies, who can't rely on these highways to serve customers in the South, locking the South in with incumbent market leaders.
- Don't offer companies from the South an equivalent access to the Northern market, anchoring our populations into the role of tech consumers instead of tech producers, and reinforcing what many are calling data extractivism: where data from people in the south is used to fuel economies in the north. A re-articulation of centuries old colonial and neocolonial practices that have not served us well.

Value and economic growth are increasingly tied to the capacity to harness digital markets. In the US, the sector grew an average of 5.6% per year, over the last 11 years. That's well above the US average. Of the top 10 of billionaires, 6 are US businessmen that lead global tech companies. The internet is enabling a new wave of wealth concentration. Early disruptors are taking over entire markets, both locally and globally. We need to find ways to ensure that value is created, captured and/or redistributed in such a way that local economies get a fair share of these benefits.

3) **RIGHTS**: As new technologies have changed much of what is valuable and the way in which we go about our lives, governments need to adapt in order to ensure that these technological systems are in line with our rights and are subject to democratic accountability and oversight. In the case of the internet, this includes ensuring we have a say regarding how our data is processed, by whom, and to what ends. Yet it is becoming increasingly evident that global companies without local infrastructure have no incentives to uphold local laws, especially in small or low and middle income countries. Forcing global companies to store data locally is increasingly perceived as the only lever left for democratically elected representatives to ensure that the rights and interests of their constituencies are respected and promoted. This scenario is raising the alarms: it could fragment the global internet into its smaller networks. Now whose fault would that be? Though this option should not be ruled out, we must consider that it would destroy value, and so it should be in nobody's interest. Furthermore, even milder forms of data localization should be scrutinized closely: current examples of these policies are seldom accompanied by strong privacy laws, meaning this change would only benefit the few, whilst vast swathes of people only continue seeing their rights and interests trampled on...by local leaders or companies.

But this isn't how the internet was meant to be...

The core goal of the 1970s internet pioneers was to connect universities so that academics could access computing resources beyond their institutions. In line with this ethos, the Web was unleashed in 1989 to help scientists share information even when the operating systems different parties relied on were not compatible.These systems were seen by its pioneers as tools that could distribute and democratize the access to information and technology for the betterment of humanity.

Today, far from those big idealistic dreams, the internet has become the place where giants like the US, China and the EU wage their battle. A battle for markets and political influence. A battle which most countries in the Global South are not fighting in but considered the prize to be won.

SO WHAT CAN WE DO?

We need our political representatives to promote more public debate around digital rights, so that these political representatives have a clearer political mandate when they represent our interests regarding the internet in global forums. But, given the existing power dynamics, our political leaders stand little to no chance of getting a better deal from these companies if they act individually. These corporations, powerful as they already are, have the support of powerful nation states. Our best shot is therefore through coordination. And since these unequal power relations are not new, perhaps it's a good moment to re-fuel and bolster the ranks of a space designed to counter central powers through coordinated solidarity: the non-aligned movement. This movement that sprouted during the Cold War to ensure our countries could resist attempts by the US and the USSR to control our politics and resources. And it seems like the current context calls for a strong come-back.

Now that the prophets of internet fragmentation argue we will eventually have to "choose" between joining the Chinese, US or European networks, we should start blowing the embers of international solidarity. We should start now, before it gets too dark. To achieve change we will need coordinated action. We are stuck between the actors that fight to keep running an unfair scheme, and those that call for a new round of map carving. Neither offers us more than being cogs in their machines. To achieve an internet that works for the South, the South will need to stick together.

The good news is that we have achieved such coordination on other matters, such as intellectual property rights over drugs. There's a lot of work ahead, but it can be done.

Perhaps, achieving this change requires that we first change our discourse: ***It is not just a matter of connecting to the world, but HOW we connect to the world.***

- What online experience do we want to offer our people?
- Will their rights protected?
- Will it be a space where they will be able to develop their identity?
- Will they be able to become content producers or will they be restricted to being consumers?
- Will they be able to obtain a fair compensation for what they produce?

The internet is ours. We make its wheels churn with every piece of content we upload, every hyperlink we place between two pieces of information, and every megabyte of data we pay for. Let's make sure we promote an internet that respects people's rights, forwards human values, and promotes the betterment of humanity as a whole. Let's ensure its an internet for everyone.

If you liked this piece, please share the survey linked below!

It includes 7 quick questions about the maps and diagrams in this piece, and a link to this article once they've submitted.

https://www.surveylegend.com/s/1lan (no names or emails collected)

Rescuing the Future

BY NICK COULDRY[1]

The internet has changed how human beings live in a fundamental way, by changing how they are connected. The internet is a space of connection as large as the infinite space between every internet-enabled device. So, if social life is based, in part, on possibilities for connecting, social life is necessarily changed by the space of the internet.

But that change so far is just an abstract one. We feel its potential in countless moments and actions, but what matters more are the larger infrastructures implied by all those possibilities for connection: infrastructures that deliver actual connection to particular people, and the infrastructures that enable people to make use of those connections in certain ways, but not others.

When the shape of the internet –the shape of the infrastructures of connection that make the internet a practical feature of daily life - help constitute what human life can be, it is unsurprising that vast amounts of capital are invested to try and influence those infrastructures. Bets on the future shape of those infrastructures, like Uber, believe they can attract large-scale investment, even when they break all the normal rules for why anyone would invest in anything: no profits, no clear path to making profit. Meanwhile, it is hard to grasp the scale of the biggest corporate bet of all, that social life really can be reconstructed in ways that makes its management, and its availability as a constant source of profit in the form of data, completely secure.

Yet such bets (and the goals and vision they represent) are the practical reality of business models today, and that reality should be the basis of practices of resistance.

Can it really be the case that at a certain point in the early 21st century humanity would accede to a gamble that cedes influence over the very spaces where social and cooperative life plays out? And not just the spaces, since algorithmic management aims to govern the norms, the events, the appearance of those spaces and our actions within them. The terms of human connection are up for grabs, they must be defended.

For those to whom that new wager is unacceptable, the challenge is to find ways, by working together and supporting each other, to rescue other ways of connecting. That requires imagination, memory, courage and solidarity.

The Berkman program for fellows, associate faculty and affiliates has proved a great place to discuss these ideas over the past 18 months. Let's make it into a space for sustained resistance to the corporatization of social life. . . .

1 NICK COULDRY, LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

ASSOCIATE FACULTY BERKMAN, 2017-2020
15 APRIL 2019

Amandla! Ngawethu!